

RESEARCH NOTE**CENTRAL STATES FOREST EXPERIMENT STATION****COLUMBUS, OHIO****R. D. LANE, DIRECTOR**

INTERMOUNTAIN STATION

Central Reference File

CS-18

No. 0.93

February 1964

A LUMBER KICKER FOR CONVEYORIZED CUT-OFF SAWS

When lumber is cut into parts in a wood processing plant, the stock usually leaves the cut-off saw on a live-roll conveyor. A stop is often used to facilitate cutting the lumber to specified lengths. Such a stop is mounted on a gauge bar on the outfeed conveyor. Where the flow of materials is in line with the feed direction of the saw, the stop holds the cut stock so that the powered rollers cannot carry it away. Thus the sawyer must reach across the path of the saw and release the cuttings. This hazardous and time-consuming practice can be eliminated by installing an automatic lumber kicker.

An inexpensive mechanical kicker has been developed at the Wood Products Pilot Plant at Carbondale, Illinois (fig. 1). It consists of several short steel kicker feet attached to a rotating shaft mounted over the live-roll conveyor. The kicker feet are activated by a striker arm on the saw end of the shaft and a pawl assembly mounted on the saw guard (fig. 2). The pawl assembly engages the striker arm on the return stroke of the saw. This causes the shaft to turn. As it turns, the kicker feet rotate forward and push the cutting away from the stop.

Each kicker consists of two parts: a steel collar and foot. The two-piece construction allows a damaged foot to be replaced without replacing the collar. On a 12-foot conveyor, six kickers are used. They can be spaced on the kicker shaft to coincide with the cutting lengths.

The kicker shaft is mounted with three 5/16-inch steel brackets (fig. 3). The holes to mount the shaft are drilled 1/64-inch oversize to allow free movement of the shaft. Near each end of the shaft there is a thrust collar, and attached to each collar is a small extension spring (fig. 4, item A). The other end of each spring is attached to a steel clip that

CENTRAL FILE COPY

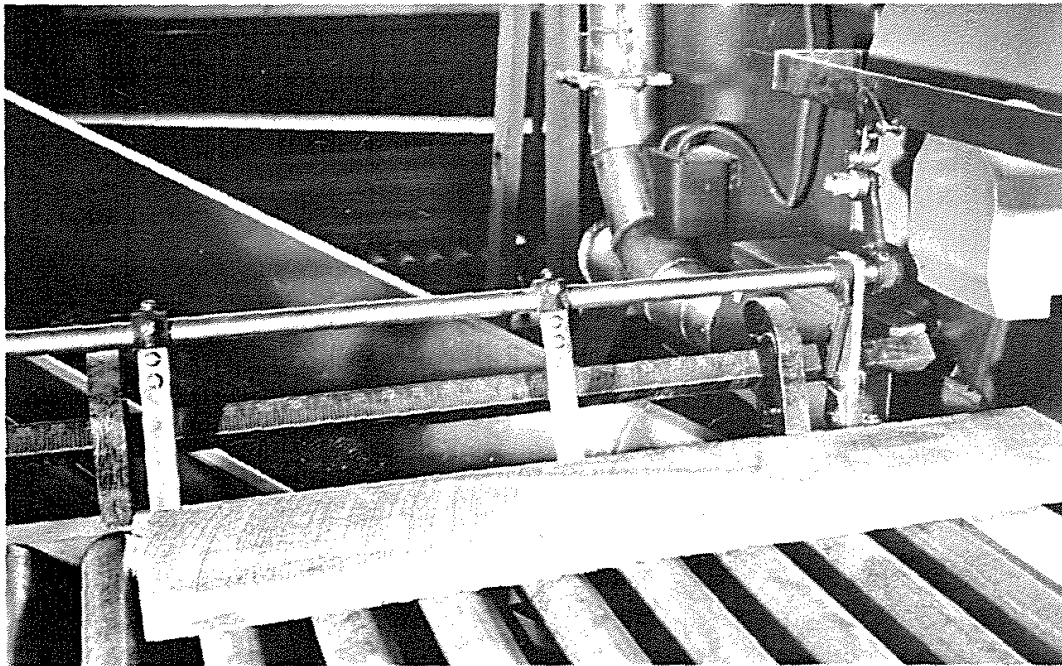


FIGURE 1.--The Porter Model 43-J cut-off saw equipped with automatic lumber kicker. As the kicker feet rotate, they push the cutting forward and free it from the stop on the gauge bar.

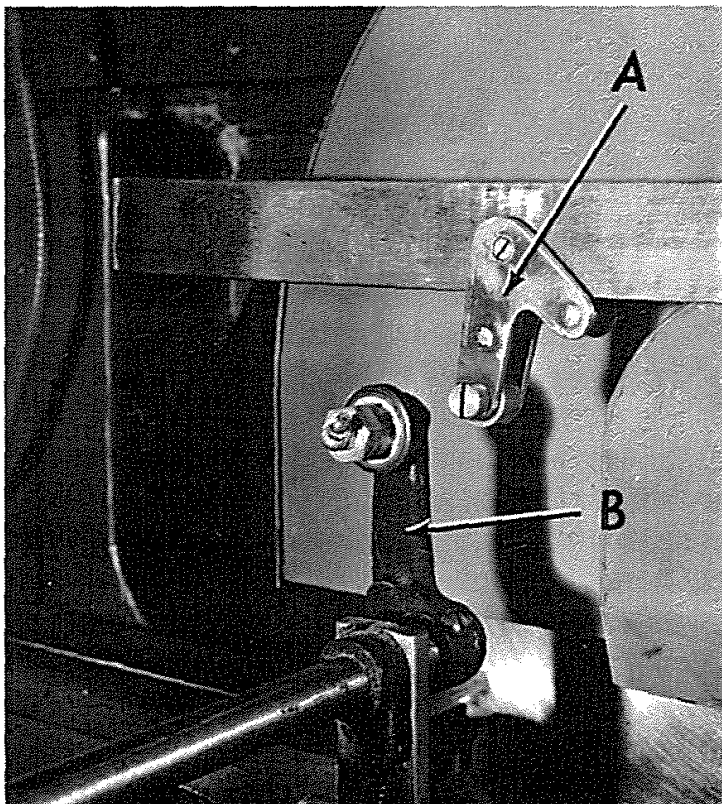
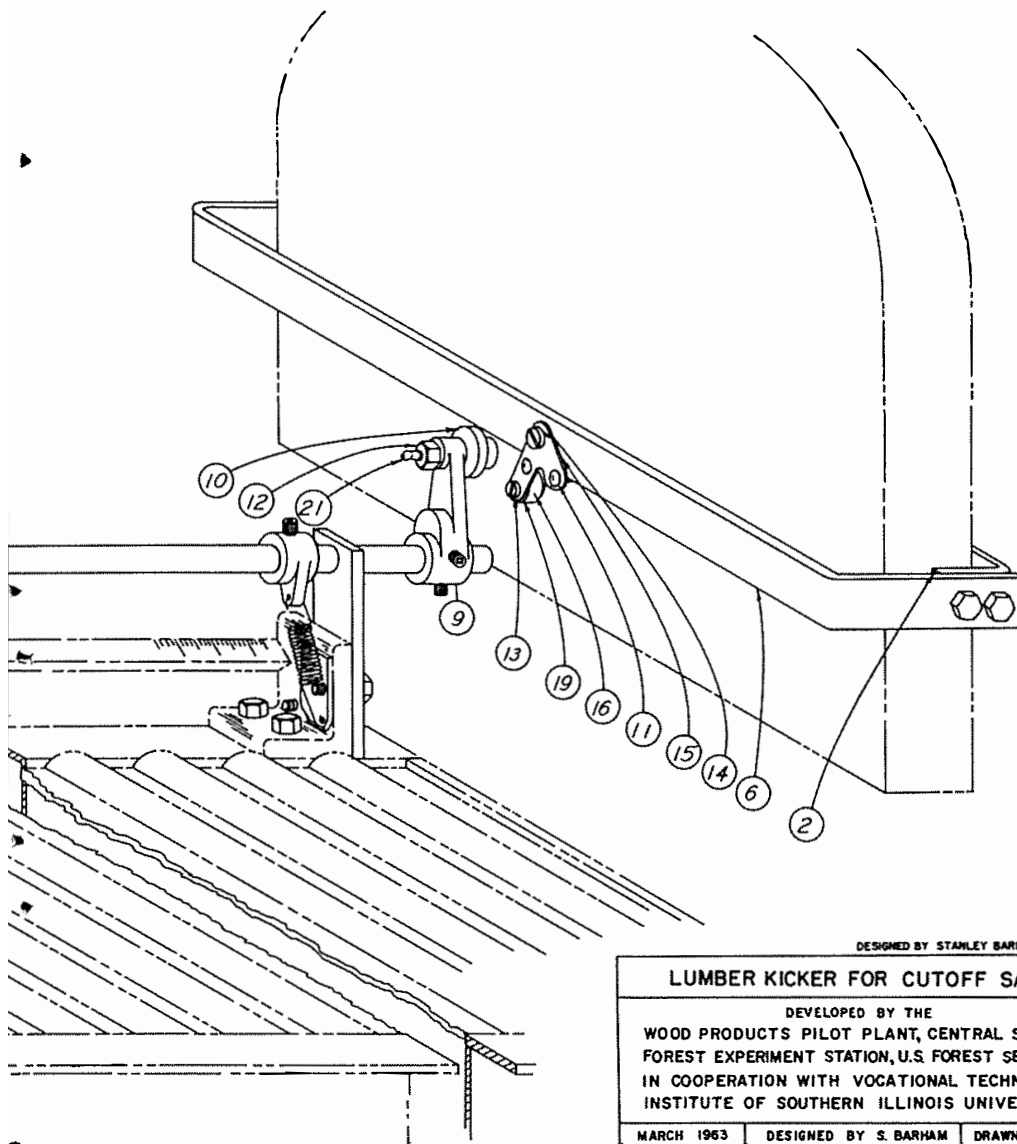


FIGURE 2.--The kicker feet are activated by: A, pawl assembly mounted on the saw and B, striker arm mounted on the end of the shaft near the saw. On the return stroke of the saw, the pawl assembly engages the striker arm. This causes the shaft to rotate and sets the kicker feet in motion.

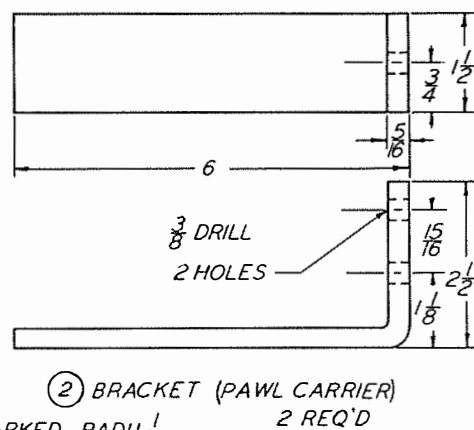
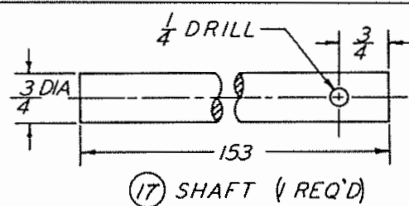
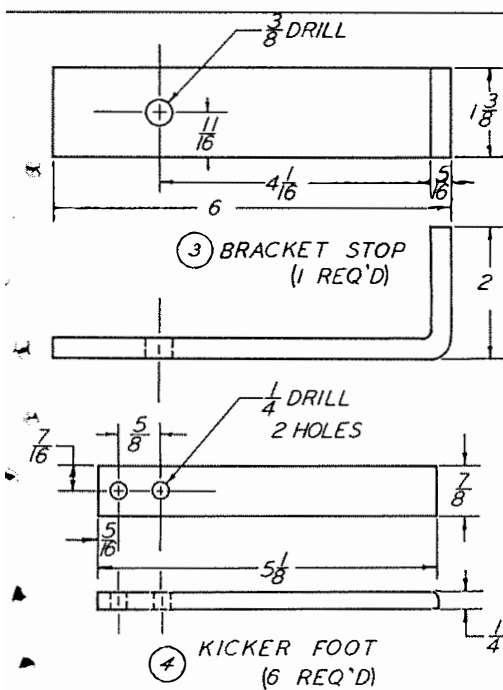


DESIGNED BY STANLEY BARHAM 2-8-56

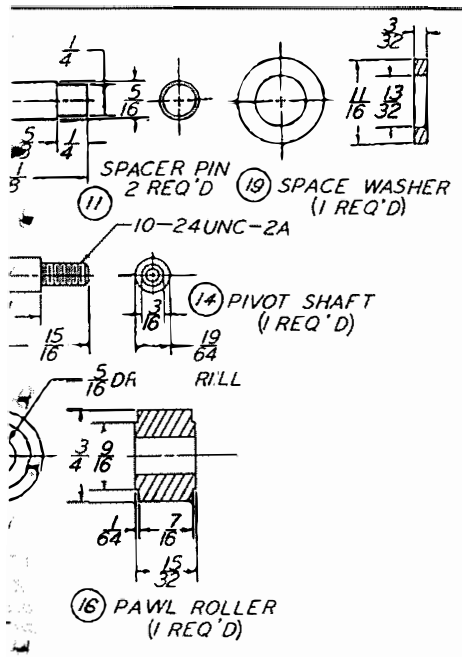
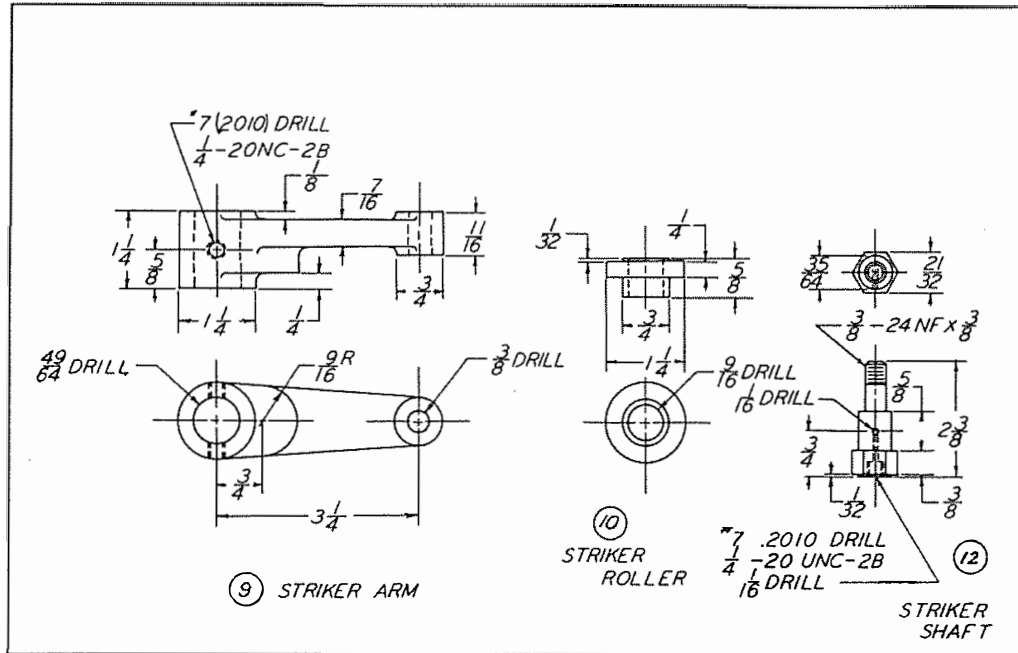
LUMBER KICKER FOR CUTOFF SAW

DEVELOPED BY THE
WOOD PRODUCTS PILOT PLANT, CENTRAL STATES
FOREST EXPERIMENT STATION, U.S. FOREST SERVICE
IN COOPERATION WITH VOCATIONAL TECHNICAL
INSTITUTE OF SOUTHERN ILLINOIS UNIVERSITY

MARCH 1963 | DESIGNED BY S. BARHAM | DRAWN BY RPB



UNMARKED RADII $\frac{1}{8}$



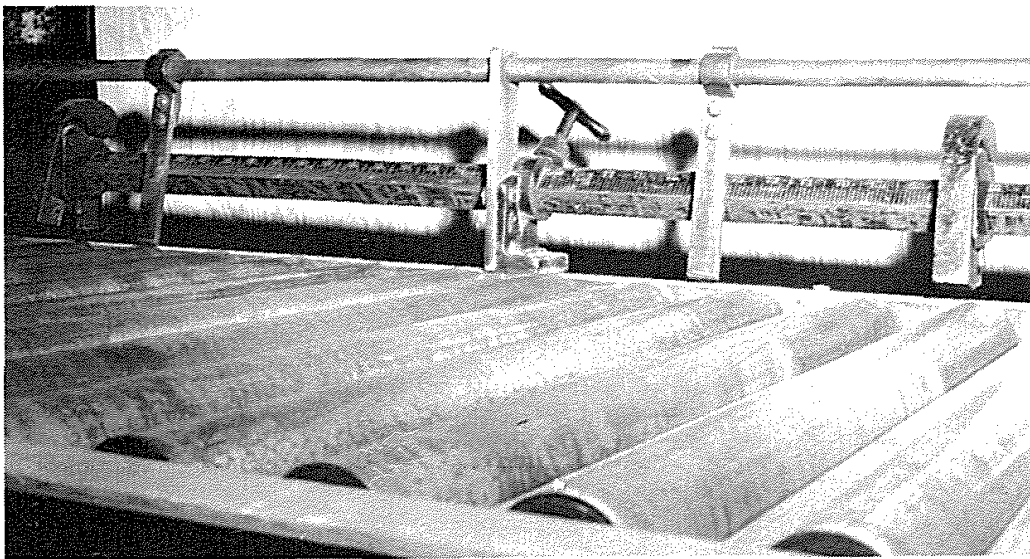
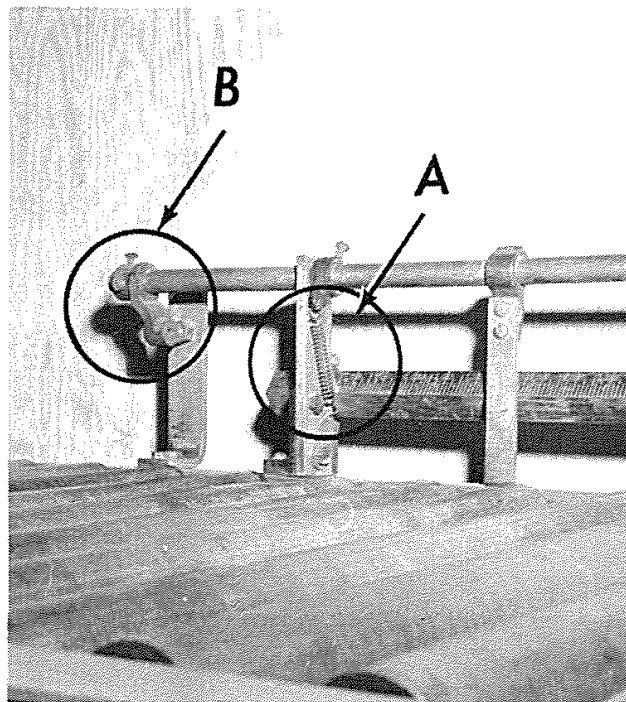


FIGURE 3.--Support brackets are used to attach the lumber kicker to the gauge bar. These supports are fastened to the gauge bar mounting brackets.

FIGURE 4.--A, Springs fastened to the thrust collars and support brackets return the kicker feet to the down position. B, Stop collar located at the far end of the shaft is used to adjust the position of the striker arm and the down position of the kicker feet.



is bolted to the bottom of support brackets. After the kickers have been activated, the springs return them to the down position.

The striker arm has a bearing mounted on its upper end. The pawl assembly contains a steel roller that contacts this bearing on the return stroke of the saw and sets the kicker feet in motion. The pawl assembly is mounted so it can revolve freely on its axis in one direction only. This allows the pawl assembly to ride over the striker arm on the forward stroke of the saw. The pawl assembly is designed so its weight is counterbalanced, thus the pawl roller automatically swings into position to engage the striker arm on the return stroke. On the return, the pawl assembly is kept from revolving by a spacer pin that contacts the bottom edge of the mounting bracket.

The position of the striker arm and kicker feet can be adjusted by means of a stop collar located at the end of the shaft farthest from the saw (fig. 4, item B). The stop collar rests against the end of a bolt that can be turned in or out to adjust the position of the kicker feet and striker arm.

Allen set screws are used to fasten the thrust collars, kicker collars, stop, and striker arm to the shaft. These four items can either be made or salvaged from other equipment. With the aid of the photographs and the attached plan, mill mechanics can make the parts with little difficulty. The mountings shown in the plan can be altered so that the kicker can be installed on most cut-off saws.

Edwin L. Lucas, forest products
technologist Carbondale, Illinois
(field office maintained in
cooperation with Southern Illinois
University)

James T. Micklewright, formerly
forest products technologist
Carbondale, Illinois, now with
Division of Forest Economics
and Marketing Research,
Washington, D. C.